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COSC A426 Game Programming  
Final Project

### Pixel Adventure

- Based on Coding In Flow's [2D Platform Game in Unity Tutorial](#)
- [Pixel Adventure Assets](#) imported from Unity Store
- Modified and enhanced by Zaynab Zeini to add and change more levels, screens, buttons, designs, scripts, and game objects.

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## I. Game Overview

To win the Pixel Adventure game, the user must pass all three levels without losing all of their lives, where each level will give them three lives. The player can lose their lives by hitting a trap (in the form of saws and spikes, moving or otherwise) or coming in contact with an enemy. The player can pass each level by making it to the checkered flag, which is placed at the very end of the level. As they make their way to the flag and attempt not to lose their lives, the player can collect fruits—specifically, cherries, bananas, and oranges, worth 1, 2, and 3 points respectively. A highscore is maintained for each level. Once they pass the third level, they win the entire game and are given the option to return to the Main Menu (where they can restart the game or find their way to the About Page for more details) or quit the game.

## II. Game Play Mechanics

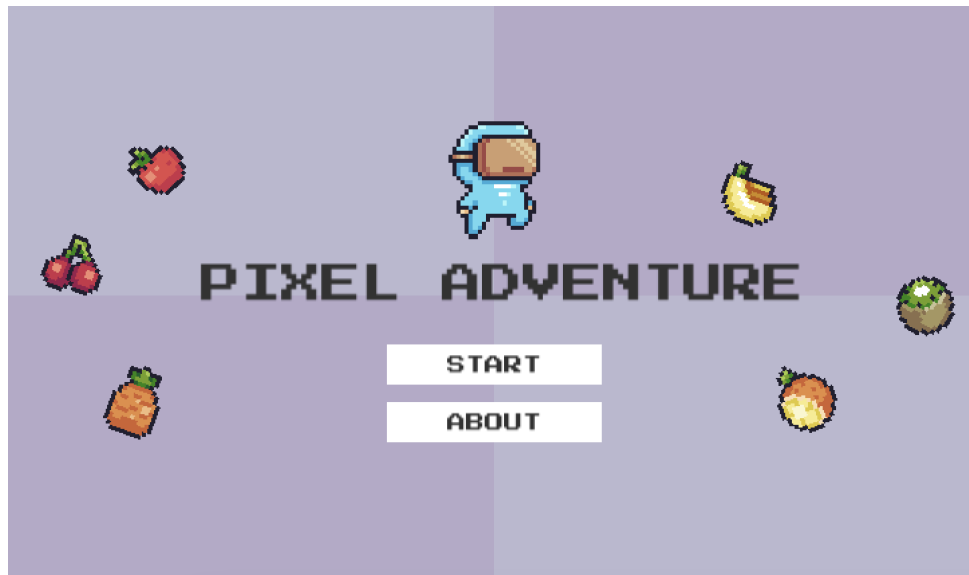
To navigate the game, the user can run left and right and do one jump at a time in either the left or right direction.

## III. Controls

The game will make use of the keyboard's spacebar and arrow keys—specifically the right and left arrow keys. A joystick will work with this game in a similar manner.

## IV. Menus and Screen Descriptions

Start Screen: This is the Main Menu and includes the name of the game along with two buttons—one to navigate to the About Screen for more details on how to play the game and one to start the game, at Level 1. There are design elements displayed throughout. This is the starting screen when the game is first played.



About Screen: This screen includes a description for the game, along with design elements displayed throughout. There is also a button to return to the Main Menu.



End Screen: This screen is displayed once the user either loses the game (by losing all their lives at any of the levels) or wins the game (by getting to the flag on Level 3). This includes a button to return to the Main Menu to start again and a second button to quit the game entirely.



## V. Game World

The game environment is made of tilemaps—Background, OverBackground, and Terrain. Terrain is where the environment is built using the tile palettes and images from the imported Pixel Adventure Assets. Beyond the background design and terrain (to make up the ground, walls, and floating platforms), the game world also includes moving platforms that aid in reaching floating platforms or avoiding traps and enemies. Additionally, traps—which include

spikes and (always rotating and often moving) saws, sometimes alone or in a sort of pit— are a part of the game world.

## **VI. Levels**

There are three levels, each progressively harder than the last.

Level 1: Level 1 includes fruits placed throughout the scene. There are saws (all are rotating, while some are moving horizontally, vertically, or are completely stationary) that the user must jump over and a pit of spikes the player must avoid using the moving platform.

Level 2: Level 2 has a different color scheme and enhances Level 1. It adds floating platforms that the player must use to avoid any traps. It also makes the traps more complex and adds a greater number of them. Additionally, the flag is on a floating platform, and an enemy is guarding it.

Level 3: Level 3 has a different color scheme as well and enhances Level 2. It adds more floating platforms that the player must use and also makes the traps more complex, along with adding a greater number of them. Additionally, there are now two enemies patrolling the ground, so if the player falls off the platforms or doesn't jump on the moving ones quickly enough, the enemy can kill the player. Furthermore, there are more floating platforms and moving platforms throughout.

## **VII. Characters**

The central character/avatar that the user plays looks like a “Virtual Guy.” He can remain idle, run, jump (but not double jump), fall and die. He can collect fruits and move to jump on floating platforms, remain on moving platforms, and avoid any traps or enemies. If he doesn't avoid these traps and enemies, he will die and lose a life.

## **VIII. Enemies**

The enemy is the only computer-controlled, non-ally character. They walk between two points, and if the player comes in contact with them, the player will die. One is present in Level 2, and two are present in Level 3.

## **IX. Items**

The user can collect fruits of varying point scales throughout. Cherries are worth 1 point, bananas are worth 2 points, and oranges are worth 3 points. There are saws and spikes that serve as traps to the user; if they come in contact with these items, they will lose a life and respawn.

## **X. Scripts Title Name**

The following are the titles of the scripts included in the game, although not all of them are put into use (although they may be used in future features): NewScene, PlayerMovement,

PlayerLife, GameManager, PlayPrefManager, EnemyMovement, ItemCollector, CameraController, EndMenu, Finish, MainMenuManager, MenuButtonLoadLevel, MenuPauseAndLoadLevel, Rotate, StartMenu, StickyPlatform, WaypointFollower.

## **XI. Scoring**

The score is determined by adding the total points obtained from collecting cherries, bananas, and oranges. The highscore holds the highest score across each level.

## **XII. Future Features**

Future features may include more levels, more kinds of fruit, more complex traps, and more enemies. Enemies may follow the player. There can be more platforms and moving platforms that run faster. Additionally, there could be weapons the player uses to harm enemies. Moreover, a feature could be added that would make good use of the player's points: once a certain number of points is reached, an extra life could be added.